

What is claimed is:

1. A flat panel display, comprising:

a plurality of pixels, each of the pixels including R, G and B unit pixels to embody red (R), green (G) and blue (B) colors, respectively, and each of the unit pixels

5 including at least one transistor,

wherein transistors of at least two unit pixels of the R, G, and B unit pixels include channel layers with different current mobilities.

2. The flat panel display according to claim 1, wherein each of the at least one

transistor in the R, G and B unit pixels includes a channel layer having the same size in each

10 pixel.

3. The flat panel display according to claim 1, wherein the R, G and B unit pixels

each further include a light-emitting device, and transistors to control currents supplied to the

light-emitting devices of each unit pixel include the channel layers having the same size in each pixel.

15 4. The flat panel display according to claim 1, wherein the R, G and B unit pixels

further include a light-emitting device driven by at least one transistor, where current mobility of

a transistor to drive a light-emitting device having the highest luminous efficiency among the

lighting-emitting devices of the unit pixels is lower than the current mobility of at least one

transistors to drive lighting-emitting devices having a relatively low luminous efficiency.

20 5. The flat panel display according to claim 1, wherein the channel layers of the

transistors of the R, G and B unit pixels are made of polycrystalline silicon films having different

crystallization directions from one another.

6. The flat panel display according to claim 5, wherein the R, G and B unit pixels each further include a light-emitting devices driven by the transistors, respectively, where a channel layer of a transistor to drive a light-emitting device having the highest luminous efficiency among the light-emitting devices is made of a metal induced crystallization (MIC) polycrystalline silicon film, and channel layers of transistors to drive light-emitting devices having relatively low luminous efficiency are made of a metal induced lateral crystallization (MILC) polycrystalline silicon film.

7. The flat panel display according to claim 1, wherein the R, G and B unit pixels each further include a light-emitting device driven by the transistors, respectively, and the R, G and B unit pixels each includes a driving transistor to drive the light emitting device and a switching transistor to the driving transistor switch on or off.

8. The flat panel display according to claim 7, wherein the channel layers of the switching transistors of the R, G and B unit pixels are made of a MIC polycrystalline silicon film, and wherein a driving transistor of a unit pixel having the highest luminous efficiency among the R, G and B unit pixels has a channel layer made of the MIC polycrystalline silicon film and driving transistors of unit pixels having a relatively lower luminous efficiency have channel layers made of a MILC polycrystalline silicon film.

9. The flat panel display according to claim 7, wherein the channel layers of the switching transistors of the R, G and B unit pixels are made of a MILC polycrystalline silicon film, and wherein a driving transistor of a unit pixel having the highest luminous efficiency among the R, G and B unit pixels has a channel layer made of a MIC polycrystalline silicon film

and driving transistors of unit pixels having a relatively lower luminous efficiency have channel layers made of the MILC polycrystalline silicon film.

10. The flat panel display according to claim 7, wherein a switching transistor and a driving transistor of a unit pixel having the highest luminous efficiency among the R, G and B unit pixels have channel layers made of a MIC polycrystalline silicon film, and driving transistors and switching transistors of unit pixels having a relatively lower luminous efficiency have channel layers made of a MILC polycrystalline silicon film.

11. In a flat panel display wherein the display comprises a plurality of pixels, each of the pixels including R, G and B unit pixels, and each of the unit pixels includes at least one transistor, a method for manufacturing the flat panel display comprises:

forming an amorphous silicon film on an insulating substrate;

forming a first mask and a second mask for metal induced lateral crystallization (MILC) on the amorphous silicon film;

depositing an metal film for MILC over the substrate;

crystallizing the amorphous silicon film into a polycrystalline silicon film in order that a portion corresponding to the first and second masks is crystallized by a MILC method and a remaining portion is crystallized by a metal induced crystallization (MIC) method;

removing the first and second masks and the metal film; and

patterning the polycrystalline silicon film in order that a semiconductor layer of a transistor of a unit pixel having the highest luminous efficiency among the R, G and B unit pixels is made of the polycrystalline silicon film crystallized by the MIC method, and semiconductor layers of transistors of unit pixels having a relatively lower luminous efficiency is made of the polycrystalline silicon film crystallized by the MILC method.

12. A flat panel display, comprising a plurality of pixels, each of the pixels including R, G and B unit pixels to embody red (R), green (G) and blue (B) colors, respectively, and each of the unit pixels including a transistor,

wherein the transistor of at least one unit pixel among the R, G, B unit pixels  
5 includes a channel region made of silicon layers having a different film quality.

13. The flat panel display according to claim 12, wherein the transistors of at least two unit pixels among the R, G and B unit pixels include channel regions made of silicon layers of at least one different film quality, and wherein lengths of the silicon layers having low current mobilities of the channel regions are different.

10 14. The flat panel display according to claim 12, wherein the transistors of the R, G and B unit pixels include channel layers having a same length.

15 15. The flat panel display according to claim 12, wherein the R, G and B unit pixels each further include a light-emitting device, respectively, and transistors to control currents supplied to the light-emitting devices of the unit pixels include channel layers having a same length.

16. The flat panel display according to claim 15, wherein a channel region of a transistor corresponding to a light-emitting device having the lowest luminous efficiency among the light-emitting devices of the R, G and B unit pixels does not include the silicon layer having low current mobility or includes the silicon layer having low current mobility which has a  
20 smaller length than channel regions of transistors corresponding to light-emitting devices having relatively higher luminous efficiency.

17. The flat panel display according to claim 14, wherein the channel region is made of a polycrystalline silicon layer and an amorphous silicon layer.

18. The flat panel display according to claim 14, wherein the silicon layer having the low current mobility in the channel region is made of the amorphous silicon layer.

5 19. In a flat panel display which comprises a plurality of pixels, each of the pixels including R, G and B unit pixels to embody red (R), green (G) and blue (B) colors, respectively, each of the unit pixels including a transistor, a method for manufacturing the flat panel display comprising:

forming an amorphous silicon film on an insulating substrate;

10 forming a first mask to a third mask for metal induced lateral crystallization (MILC) on the amorphous silicon film;

depositing a metal film for MILC over the substrate;

crystallizing the amorphous silicon film into a polycrystalline silicon film in order that the amorphous silicon film is partially remained only under the first to third masks;

15 removing the first to third masks and the metal film; and

patterning the polycrystalline silicon film in order that the amorphous silicon film exists between the polycrystalline silicon films to form semiconductor layers of the transistors of the R, G and B unit pixels,

20 wherein channel regions of the transistor of the R, G and B unit pixels have resistance values determined by lengths of the amorphous silicon films existing between the polycrystalline silicon films.